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(54) Title: VIRULENCE GENES OF *M. MARINUM* AND *M. TUBERCULOSIS*

(57) Abstract: Methods for identifying, isolating and mutagenizing virulence genes of mycobacteria, *e.g.*, *M. marinum* and *M. tuberculosis*, are described. Also described are isolated virulence genes and fragments of them, isolated gene products and fragments of them, avirulent bacteria in which one or more virulence genes are mutagenized, attenuated vaccines containing such mutant bacteria, and methods to elicit an immune response in a host, using such mutant bacteria.

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